

## P A T E N T C O O P E R A T I O N T R E A T Y

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
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 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year) 14 February 2001 (14.02.01)	
International application No. PCT/US00/08562	Applicant's or agent's file reference 19730-1-1PC
International filing date (day/month/year) 28 March 2000 (28.03.00)	Priority date (day/month/year) 29 March 1999 (29.03.99)
Applicant ANSARI, Zahid et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

30 October 2000 (30.10.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

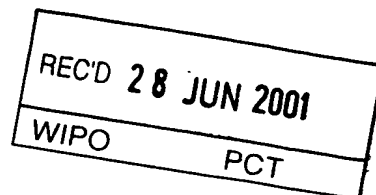
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PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



14

Applicant's or agent's file reference 19730-1-IPC	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/08562	International filing date (day/month/year) 28 March 2000 (28.03.2000)	Priority date (day/month/year) 29 March 1999 (29.03.1999)
International Patent Classification (IPC) or national classification and IPC IPC(7): H03K 7/08 and US Cl.: 332/109, 110; 318/599, 811; 363/63, 132		
Applicant ANACON SYSTEMS, INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.  
  
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 0 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 30 October 2000 (30.10.2000)	Date of completion of this report 05 June 2001 (05.06.2001)
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer Siegfried H. Grimm Telephone No. (703) 308-0956 <i>Revised</i>

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☒ the international application as originally filed.
- ☒ the description:  
pages 1-10 \_\_\_\_\_ as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
pages 11-16 \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, as amended (together with any statement) under Article 19  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the drawings:  
pages 1-7 \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the sequence listing part of the description:  
pages NONE \_\_\_\_\_, as originally filed  
pages NONE \_\_\_\_\_, filed with the demand  
pages NONE \_\_\_\_\_, filed with the letter of \_\_\_\_\_

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in printed form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

**4. ☒ The amendments have resulted in the cancellation of:**

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/fig NONE

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International Application No.

PCT/US00/08562

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims 21-30	YES
	Claims 1-20	NO
Inventive Step (IS)	Claims 21-30	YES
	Claims 1-20	NO
Industrial Applicability (IA)	Claims 1-30	YES
	Claims NONE	NO

**2. CITATIONS AND EXPLANATIONS (Rule 70.7)**

Claims 1-20 lack novelty under PCT Article 33(2) as being anticipated by each one of the Zuraski et al. (5,589,805) and Fogg (5,767,740).

Zuraski disclose in Fig. 3 a first switching circuit 25a, 25b and a second switching circuit 25c, 25d both connected in parallel with a DC voltage source to provide a pulse width modulated signal to a load M which may be a DC motor. A control line 15 provides a directional control signal to the switching circuits, so that the polarity of the signal applied to the load M can be reversed. A pulse width modulated signal on line 19 is processed in logic circuit 21 to provide signals to the switching circuits. The circuit in Fig. 3 of Zuraski is capable of operating in the manner as is claimed in claims 1-20. If desired, the directional control signal on line 15 can be controlled so that the DC voltage is switched to produce alternate positive and negative pulse width modulated voltage signals across the load M each for half of a fundamental output period.

Fogg discloses in Fig. 1B a pair of switching circuits 52, 54 and 56, 58 connected in parallel with a DC voltage source (not shown) and which can be controlled by a pulse width modulation control circuit 18 to produce positive and negative pulse width modulated signals each lasting one half of a fundamental output period, as shown at the bottom of Fig. 2B.

Claims 21-30 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the apparatus of claim 21 and the method of claim 26 in which the switches are operated to produce a first polarity output signal by switching the first and second switches of a first switching circuit at a modulation frequency, while the third and fourth switches of a second switching circuit are respectively held in a conducting and a non-conducting condition. And, the switches are operated to produce a second polarity output signal by holding the first and second switches in respective non-conducting and conducting states, while the third and fourth switches are switched at the modulation frequency.

Claims 1-20 meet the criteria for industrial applicability set out in PCT Article 33(4), because the present claimed invention is useful in the industry.

----- NEW CITATIONS -----

NONE



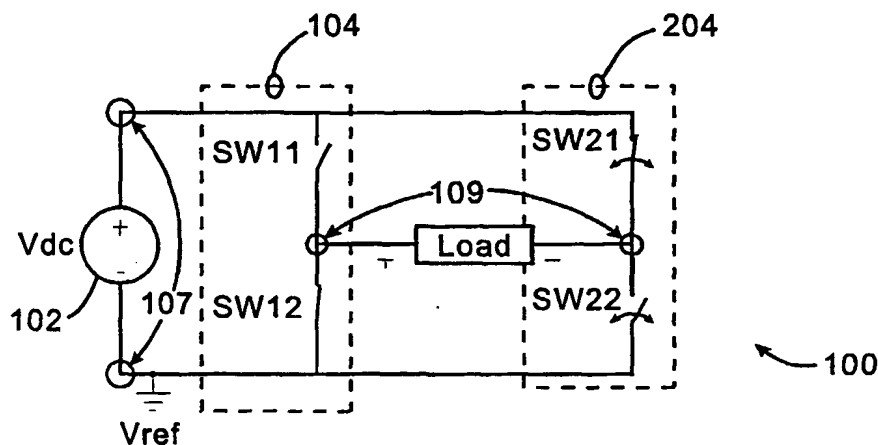
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> : <b>H03K 7/08</b>		A1	(11) International Publication Number: <b>WO 00/59114</b>
			(43) International Publication Date: 5 October 2000 (05.10.00)
(21) International Application Number: PCT/US00/08562		(72) Inventors; and	
(22) International Filing Date: 28 March 2000 (28.03.00)		(75) Inventors/Applicants (for US only): ANSARI, Zahid [US/US]; 85 Princeton Road, Menlo Park, CA 94025 (US). PRICKETT, Bruce, L. [US/US]; 40351 Imperio Place, Fremont, CA 94539 (US). GUY, Jonathan, Andrew [NZ/US]; 444 Brenner Drive, Austin, TX 78749 (US).	
(30) Priority Data:		(74) Agents: VOBACH, William, F. et al.; Townsend and Townsend and Crew LLP, 8th Floor, Two Embarcadero Center, San Francisco, CA 94111-3834 (US).	
60/126,770 29 March 1999 (29.03.99) US			
60/164,083 5 November 1999 (05.11.99) US			
60/163,707 5 November 1999 (05.11.99) US			
60/164,326 7 November 1999 (07.11.99) US			
(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Applications		(81) Designated States: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
US 60/126,770 (CON)			
Filed on 29 March 1999 (29.03.99)			
US 60/164,083 (CON)			
Filed on 5 November 1999 (05.11.99)			
US 60/163,707 (CON)			
Filed on 5 November 1999 (05.11.99)			
US 60/164,326 (CON)			
Filed on 7 November 1999 (07.11.99)			
(71) Applicant (for all designated States except US): ANACON SYSTEMS, INC. [US/US]; 1043 Shoreline Boulevard, Suite 202, Mountain View, CA 94043 (US).		Published With international search report.	

(54) Title: METHOD AND APPARATUS FOR PROVIDING PULSE WIDTH MODULATION

## (57) Abstract

A pulse width modulation scheme allows the creation of a unipolar pulse width modulated output signal. Two switching circuits (104, 204), preferably different legs of an inverter circuit, can operate to not only modulate an input voltage but also to reverse the polarity of the PWM output signal. Both switching circuits can be configured to accomplish both features, thus the switching load is spread out across all four switches.



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EE	Estonia	LR	Liberia	SG	Singapore		

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/08562

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H03K 7/08

US CL : 332/109, 110; 318/599, 811; 363/63, 132

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 332/109, 110; 318/599, 811; 363/63, 132

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,589,805 A (ZURASKI ET AL) 31 DECEMBER 1996 (31.12.1996), column 2, line 28 to column 3, line 18, Fig. 3.	1-20
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A		21-25
X	US 5,767,740 A (FOGG) 16 JUNE 1998 (16.06.1998), column 1, line 6 to column 2, line 31, Figs. 1B, 2B.	1-20
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A		21-25
X	US 6,005,316 A (HARRIS) 21 DECEMBER 1999 (21.12.1999), column 2, line 65 to column 3, line 27, Figs. 3A-4.	1-20
---		-----
A		21-30

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

25 May 2000 (25.05.2000)

Date of mailing of the international search report

13 JUN 2000

Name and mailing address of the ISA/US

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Authorized officer

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/08562

**Continuation of B. FIELDS SEARCHED Item 3: WEST-ALL**  
Search terms: pulse width modulat\$3 same unipolar  
pulse width modulat\$3 same H-bridge